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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,118	02/28/2001	Thomas Schulte	10191/1566	5238
26646	7590	11/19/2003		
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			EXAMINER DICUS, TAMRA	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,118

Applicant(s)

SCHULTE ET AL.

Examiner

Tamra L. Dicus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

This Office Action is responsive to the amendment filed 09-05-03. The Examiner acknowledges cancellation of claims 1-13.

Claim Rejections – 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-19 and 22-24 are rejected under 35 U.S.C. 103(a) as being obvious over USPN 4,659,960 to Toya et al. in view of USPN 4,832,988 to Bogenschutz et al. and USPN 6,076,965 to Rosen et al.

Toya discloses various embodiments of a spark plug (temperature sensor) and making the plug comprising an electrode element (carrier) of a metal oxide, carbide, or nitride powders, (such as zirconia, silicon nitride, or titanium carbide) coated with a noble metal, where an electrode axis (conductor track) of nickel or precious metals such as platinum covers the surface of the electrode element embedded in a laminated structure (see col. 2, line 46 – col. 3, line 6; Figures and patented claims). The process utilized may employ various coating techniques including chemical and physical vapor deposition processes (see col. 3, lines 7-35; col. 3, lines 65+; col. 4, lines 25+).

Toya does not teach thermal treating a carrier and its causes (claims 22 and 23).

However, Bogenschutz teaches a process for chemically metallizing an inorganic substrate, explaining ceramic or glass materials are used as assembly elements, carrier elements or in the form of layers in the semiconductor art. Examples of materials for these applications are silicon nitride, silicon oxide nitride, as well as carbidic layers. In order to be functional in these electrical or electronic applications, these materials or layers must be metallized for the production of conductive paths and conductive terminals. Metallization is generally accomplished with copper or a copper alloy, since copper meets the requirements particularly well with respect to electrical conductivity, ductility, and solderability. Further, copper and copper alloys can be deposited in an electroless, i.e., a currentless chemical manner and can be then electrolytically reinforced using the layer deposited chemically as an electrode. See col. 1, lines 16-50. In the abstract, Bogenschutz further explains how thermal treatment can increase adhesion. See also col. 4, lines 20-28 explaining further, a thermal treatment before, during and/or after at least one of the process steps has been found to be necessary in order to reinforce and/or accelerate the formation of chemical bonds, such as by mechanisms including diffusion and/or transportation. Hence, it would have been obvious to one of ordinary skill in the art to modify the plug of Toya to include thermal treating and its inherent causes because Bogenschutz teaches carriers after electroless deposition can be thermally treated to reinforce adhesion as cited above.

Toya does not teach an evaluation device. However, Rosen teaches a monocrystal of nickel cobalt-manganese oxide and method of a sensor formed where an evaluation device (an electrical resistance measuring device 110 is connected to the sensing element (temperature

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sensor) via leads 106 (conductor tracks), made of the aforementioned metal oxide. See col. 7, lines 14-49 and Figure 4, depicting the leads to measure resistance as claimed in claim 14.

Further meeting claim 24, in regards to the "loading the at least one conductor track with an alternating current voltage", Rosen teaches at col. 7, lines 35-45, a circuit can be used to measure unknown temperature, which inherently provides alternating current. Hence, it would have been obvious to one of ordinary skill in the art to modify the spark plug of Toya to include an evaluation device since Rosen teaches sensing elements connected to electrical resistance measuring devices for the purpose of providing connections in series as taught by Rosen at col. 7, lines 14-49. Also it would have been obvious to one of ordinary skill in the art to provide loading to a conductor track since Rosen teaches at col. 7, lines 34-45 using a circuit to provide the loading in order to measure unknown temperatures via resistance the circuit provides.

3. Claims 14 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,659,960 to Toya et al. in view of USPN 6,076,965 to Rosen et al. and further in view of USPN 4,387,258 to Vadekar et al.

4. As provided above, Toya in view of Rosen essentially teaches the claimed invention.

Toya does not disclose the way in which palladium is deposited as recited in instant claims 20 and 21. However, Vadekar teaches selective hydrogenation using palladium on crystalline silica teaching it is known to provide a substrate with deposited palladium (inclusive of palladium nuclei) at col. 3, lines 34-68 via vapor or gas phase deposition, and reduction (initially deposited by reduction) because palladium crystallites (palladium used as seed crystals for deposition, claim 22) have excellent results from metal surface area measurements as the crystallite disperses well with metal. Hence, it would have been obvious to one of ordinary skill in the art

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to modify the sensor of Toya to further include palladium or their seeds for the purpose of providing have excellent results from metal surface area measurements as the crystallite disperses well with metal as taught by Vadekar at col. 3, lines 34-68.

Response to Arguments

1. Applicant's arguments filed 09-05-03 have been fully considered but they are not persuasive. Applicant purports that Toya does not disclose an evaluation device. The Examiner did not use Toya to teach an evaluation device, but used Rosen to teach this device (see Figure 4). Applicant points to Rosen's leads 106 and terminals 104 to say 106 is connected to an evaluation device 110 but nothing more and states Rosen doesn't teach what leads 106 is made of, nor that 110 is not used to measure a temperature-dependent change. The Applicant appears to have ignored the teachings of Rosen at col. 7, lines 14-45 that explicitly teach 110 measures unknown temperature through the sensing element 102, in connection with 104 and 106. Rosen was not used to teach what leads 106 are made of, Toya was. Toya teaches a sensing element, spark plug, having conductor tracks of nickel or metals in a laminated structure (col. 2, lines 45-col. 3, lines 6 & 56-57, and Figures). Rosen teaches motivation to use an evaluation device with sensing elements because Rosen teaches a sensing element connected to an evaluation device to measure temperature-dependent change. Furthermore, Rosen teaches 104 is comprised of metals formed by electroless plating, and shows how temperature-dependent changes are evaluated with an evaluation device at col. 7, lines 19-43.
2. Applicant further purports that Toya does not teach one conductor track formed by a currentless deposition of a metal onto a carrier. However, Bogenschutz was used to teach the various ways of depositing metal including currentless deposition (at col. 1, lines 16-50) and

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thermal treatments (at col. 4, lines 20-28). Applicant further alleges that Bogenschutz discloses thermal treatment for increasing adhesion. Such an argument is not persuasive because it is immaterial as to the purpose for why Bogenschutz teaches the same thermal treatment process that Applicant claims. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Therefore, the combination is valid, and is not combined by hindsight as Applicant purports. Applicant further argues that the Office Action reflects a subjective "obvious to try" standard. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Again, all references provide motivation to combine because they are all to technology concerning conductivity, resistivity, or evaluating temperature via metal compounds and sensing elements.

Applicant also contends that because the Office Action does not even assert that it would have been obvious at the time the invention was made to make the combination, that the

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rejection is not proper. The Examiner does not have to assert this because the prior art of record is prior to the Applicant's filing date.

Applicant further purports that the PTO's record is any other than evidence, but speculation. The Examiner does not agree because as stated above, the Examiner pointed to all of the teachings by the prior references.

A *prima facie* case has been established, and therefore the burden shifts to the Applicant to submit additional objective evidence of nonobviousness, such as comparative test data showing that the claimed invention possesses improved properties not expected by the prior art. Until the Applicant can show and prove any results that would not obvious, the rejection will stand.

Applicant alleges the rejection over Toya in view of Rosen and further in view of Vadekar should be withdrawn because Vadekar is merely used to assert disclosure of selective hydrogenation using palladium on crystalline silica as a substrate with deposited palladium via vapor or gas deposition and reduction. The Examiner used this teaching to teach the way in which palladium is deposited as recited in instant claims 20, 21, and 22. Vadekar explains the teaching at col. 3, lines 34-68 for the purpose of providing excellent results from metal surface are measurements. Therefore, the Examiner's conclusions are supported by the findings in the prior art of record, and hence the Applicant should submit objective evidence to prove contrary.

The rejection is upheld.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tamra L. Dicus
Examiner
Art Unit 1774

November 6, 2003

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

